

Remarks

Claims 1, 11-13, 17, 23, 33-35, 36, 42 and 52-55 have been amended. New claims 66 and 67 have been added. Review and reconsideration in light of the amendments are respectfully requested.

Claims 1, 3-4, 8, 11, 17, 21, 22, 42, 44, 45, 49, 52, 56, 57 and 65 are rejected as being unpatentable over U.S. Pat. No. 4,656,676 to Medwell in light of Japanese Patent 64-68572. Applicants have obtained a full translation of the Japanese patent to obtain a fuller understand thereof, and a copy of the translation is enclosed.

The Office action takes the position that the Medwell reference discloses the basic claimed process of the invention, but does not teach a thermosetting resin-impregnated fabric having ceramic particles mixed therein. The Office action then takes the position that it would have been obvious to one of ordinary skill in the art to mix the ceramic particles of the Japanese reference in the thermosetting resin of the Medwell reference to arrive at the claimed invention.

The Office action indicates that the motivation for the combination of the cited references can be found on the basis that the Japanese reference allegedly teaches that ceramic particles radiate far-infrared rays. The Office action also indicates that motivation for the combination can be found because both references teach a resin-impregnated fabric. However, for the reasons discussed below it is submitted that, upon a reading of the fully translated Japanese reference, the Japanese reference in fact teaches against the proposed combination.

As can be seen from the attached translation of the Japanese reference, the ceramic-infused cloth of that reference is used to make a moisture-permeable waterproof cloth that exhibits good heat retention properties (page 4, lines 8-11). The cloth is used for garments used in cold-weather environments (page 3, lines 3-5), and is used to trap heat inside the garment. For example, as discussed at page 9, lines 13-20 of the translation, the ceramic-infused cloth absorbs the sun's energy and converts the sun's energy into heat energy back into the wearer of the garment. The ceramic-infused cloth also blocks the leakage of the wearer's heat energy outside of the garment.

In an exemplary example of the Japanese reference, as noted at page 13, lines 4-9, it is noted that the ceramic cloth of the Japanese reference:

absorbs light source energy well and does not let such escape where compared with Comparative Example 1's moisture permeable waterproof cloth. The surface temperature of the cloth also rises and it shows good heat retention properties.

Thus, the Japanese reference discloses the use of ceramic-infused resin to guide and trap heat therein, and actually causes the surface temperature of the cloth to increase. In contrast, in firefighter equipment, such as the helmet disclosed in the Medwell reference, it is generally desired to minimize heat retention and keep the surface temperature low. Thus, it is submitted that one of ordinary skill in the art would not be motivated to use the heat-retaining ceramic of the Japanese reference in the helmet of the Medwell reference, and that in fact the art teaches against such a proposed combination.

Claims 1, 3-5, 8, 11-13, 15-19, 21-23, 27, 33-36, 42, 44-46, 49, 52-57 and 65 are rejected as being unpatentable over U.S. Pat. No. 5,794,271 to Hastings in light of Japanese Patent 64-68572. In particular, the Office action takes the position that the Hastings reference discloses the basic claimed process of the invention, but does not teach a thermosetting resin-impregnated fabric having ceramic particles mixed therein. The Office action then takes the position that it would have been obvious to one of ordinary skill in the art to mix the ceramic particles of the Japanese reference in the thermosetting resin of the Hastings reference to arrive at the claimed invention.

However, similar to the arguments outlined above in the context of the Medwell reference, the cited art does not teach the proposed combination, but instead teaches against such a combination. In particular, the Japanese reference discloses the use of ceramic-infused resin to trap heat therein and to increase its surface temperature, and the helmet of the Hastings reference would generally be desired to minimize heat retention and to remain cool. Moreover, the Hastings reference does not cite to a need for any heat retaining characteristics, and

In an exemplary example of the Japanese reference, as noted at page 13, lines 4-9, it is noted that the ceramic cloth of the Japanese reference:

absorbs light source energy well and does not let such escape where compared with Comparative Example 1's moisture permeable waterproof cloth. The surface temperature of the cloth also rises and it shows good heat retention properties.

Thus, the Japanese reference discloses the use of ceramic-infused resin to guide and trap heat therein, and actually causes the surface temperature of the cloth to increase. In contrast, in firefighter equipment, such as the helmet disclosed in the Medwell reference, it is generally desired to minimize heat retention and keep the surface temperature low. Thus, it is submitted that one of ordinary skill in the art would not be motivated to use the heat-retaining ceramic of the Japanese reference in the helmet of the Medwell reference, and that in fact the art teaches against such a proposed combination.

Claims 1, 3-5, 8, 11-13, 15-19, 21-23, 27, 33-36, 42, 44-46, 49, 52-57 and 65 are rejected as being unpatentable over U.S. Pat. No. 5,794,271 to Hastings in light of Japanese Patent 64-68572. In particular, the Office action takes the position that the Hastings reference discloses the basic claimed process of the invention, but does not teach a thermosetting resin-impregnated fabric having ceramic particles mixed therein. The Office action then takes the position that it would have been obvious to one of ordinary skill in the art to mix the ceramic particles of the Japanese reference in the thermosetting resin of the Hastings reference to arrive at the claimed invention.

However, similar to the arguments outlined above in the context of the Medwell reference, the cited art does not teach the proposed combination, but instead teaches against such a combination. In particular, the Japanese reference discloses the use of ceramic-infused resin to trap heat therein and to increase its surface temperature, and the helmet of the Hastings reference would generally be desired to minimize heat retention and to remain cool. Moreover, the Hastings reference does not cite to a need for any heat retaining characteristics, and a heat

retaining helmet would add to the discomfort of the wearer. Thus, it is submitted that the cited art teaches against such a proposed combination.

Further, each of independent claims 1, 17, 23, 36 and 42 have been amended to further clarify over the Hastings reference. At page 7, the Office action refers to the “fiber reinforced woven fabric (20)” of the Hastings reference. However, the Hastings reference does not disclose such a component. The Hastings reference does disclose a “woven fabric material” 20 and a fiberglass layer 32 located below the fabric material 20 (see Fig. 3) at certain locations of the helmet. Thus, it appears that the Office action has construed the woven fabric material 20 and fiberglass layer 32 of the Hastings reference as a single “fiber reinforced woven fabric” layer 20/32.

However, the fiberglass layer 32 of the Hastings reference is not located throughout the helmet, and is in fact located only in selected locations. As discussed at column 3, lines 9-17 of the Hastings reference, the fiberglass layer 32 is located only on the ear-protecting flanges 14, 16 of the helmet, up to the dotted lines 34 or 36. The fiberglass layer 32 is added to provide additional impact resistance to the ear flanges 14, 16.

In contrast, each of independent claims 1, 17, 23, 36 and 42 have been amended to specify that the fiber-based filler has a generally continuous generally hemispherical bowl portion. In contrast, as noted above, the layer 20/32 of the Hastings reference is not a generally continuous generally hemispherical bowl portion. Instead, the layer 20/32 is located only at the ear-protecting sides of the helmet. It is therefore submitted that independent claims 1, 17, 23, 36 and 42 define over the proposed modification of the Hastings reference.

Claim 11 further defines over the woven fabric 20/fiberglass layer 32 and specifies that the bowl portion is generally entirely made of fibers that are selected from the group consisting of glass fibers, aramid fibers, azol fibers and any combination of glass, aramid and azol fibers. In contrast, the woven fabric 20 of the Hastings reference does not appear to include the subject matter of claim 11. Claims 12, 13, 33-35, 52-55 and new claim 66 include further distinctions along these lines.

Serial No.: 09/689,131
Attorney Docket No.: 520219-273
Amendment

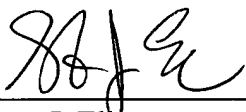
New claim 67 has been added to specify one particular order of operations which may be utilized in the steps included in claim 42.

Thus, in sum, it is submitted that the amended claims now further define over the cited art. Accordingly, it is submitted that the application is in a condition for allowance and a formal notice thereof is earnestly solicited.

The Commissioner is hereby authorized to charge any additional fees required, including the fee for an extension of time, or to credit any overpayment to Deposit Account 20-0809.

The applicant(s) hereby authorizes the Commissioner under 37 C.F.R. §1.136(a)(3) to treat any paper that is filed in this application which requires an extension of time as incorporating a request for such an extension.

Respectfully submitted,

By 
Steven J. Elleman
Reg. No. 41,733